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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,470	03/20/2002	David Robert Diggins	025265-227	9637
21839	7590	07/29/2005	EXAMINER	
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			CHAN, SING P	
			ART UNIT	PAPER NUMBER
			1734	

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/089,470	DIGGINS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Sing P. Chan	1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on \_\_\_\_.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 41-57 and 81-103 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 41-57 and 81-103 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/16/05.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 41-54, 81-85, 88-94, 97, 98, 102, and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483).

Regarding claims 41 and 103, Mase et al discloses a method of forming a plastic lens. The method includes providing a lens substrate, coating the surface of the substrate with a primer layer, curing or drying the primer layer, coating the primer layer with a hard coat layer, i.e. abrasion resistant layer, curing the hard coat. (Col 4, lines 1-62) Mase et al does not disclose coating the layers onto a mould in the reverse order and after forming the coating layers, filling the mould with lens forming material and curing and forming the lens. However, coating the layers onto a mould in the reverse order and after forming the coating layers, filling the mould with lens forming material and curing and forming the lens are well known and conventional as shown for example by Soane et al. Soane et al discloses a method of forming optical elements, i.e. lens. The method includes providing a mold and coating with the optical coating in the

reverse order and the desired liquid optical material is supplied to the mold and cured or solidified. (Col 4, lines 14-20, Col 5, line 61 to Col 6, line 12, and Col 8, lines 57-64)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a mold and coating the optical coating to the mold and injecting the liquid optical material into the mold and curing the material to form the coated lens as disclosed by Soane et al in the method of Mase et al to allow the transfer of optical coatings at a different location and time and reducing handling time and costs. (Col 2, lines 53-67)

Regarding claim 42, Mase et al is silent as to the first coating layer is applied to the casting face of the mould so as to completely cover the casting face. However, coating the first coating layer to the casting face of the mould so as to completely cover the casting face is well known and conventional as shown for example by Soane et al. Soane et al discloses the all the coatings are applied to the mold by spin coating or dipping, which completely cover the casting face. (Col 5, lines 40-47, Col 5, lines 54-60, Col 6, lines 39-43)

It would have been obvious to one of ordinary skill in the art at the time the invention was made coat the mold face completely as disclosed by Soane et al in the method of Mase et al provide a very uniform coating on the mold. (Col 4, lines 58-67)

Regarding claim 43, Mase et al discloses after the layer is cured, which is considered to be a film and is insoluble is immersed in a hard coat solution and is considered to be aberration-free. (Col 5, lines 16-30)

Regarding claim 44, Mase et al is silent as to the partial curing the coating. However, partial curing of the coating is well known and conventional as shown for example by Soane et al. Soane et al discloses coating and curing the coatings to the affective degree of crosslinking for storing and shipping for later use. (Col 10, lines 10-29)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to partially curing the coating as disclosed by Soane et al in the method of Mase et al to provide unreacted groups in the coating layer available for future crosslinking with the optical material. (Col 10, lines 27-29)

Regarding claim 45, Mase et al discloses the curing or drying is performed at 110°C to 130°C and 15 to 19 minutes. (Col 4, lines 1-10)

Regarding claims 46 and 47, coating layer as disclosed by Mase et al is considered to contain an unsaturated monomer range of 30 to 90% or 55% to 70%.

Regarding claims 48 and 49, Mase et al discloses the curing or drying is initiated by heating, ultraviolet light irradiation, and electron beam irradiation. (Col 4, lines 53-62)

Regarding claims 50-52, Mase et al discloses the coating layer includes glycidoxypropyltrimethoxysilane or methacryloxypropyltrimethoxysilane, which is considered to form network by ring opening of the glycidoxy portion. (Col 4, lines 22-37)

Regarding claims 53 and 54, Mase et al discloses the coating includes a solvent and curing is considered to include removal of the solvent by heating. (Col 4, lines 44-62)

Regarding claims 81-85, Mase et al discloses additional coating of anti-reflection coatings after the primer and hard coating has been applied, (Col 4, line 65 to Col 5, line 8) which as modified by Soane et al will required the anti-reflection coating be applied prior to the first or hard coating has been applied.

Regarding claims 88-92, Mase et al discloses the hard coating is comprised polysiloxane resin, (Col 4, lines 21-38) but is silent as to the intermediate coating is comprised of methacryl silane. However, providing an intermediate coating comprising of methacryl silane such as methacryloxypropyltrimethoxysilane is well known and conventional as shown for example by Soane et al. Soane et al discloses a coupling agent, i.e. intermediate coating, comprising methacryloxypropyltrimethoxysilane and is considered to contain in the amount ranged from 30% to 100 by weight. (Col 6, lines 39-43)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide methocryloxypropyltrimethoxysilane as the intermediate coating as disclosed by Soane et al in the method of Mase et al to allow the transfer of optical coatings at a different location and time and reducing handling time and costs. (Col 2, lines 53-67)

Regarding claims 93 and 94, Mase et al discloses the hard coating has a thickness of 2 to 5  $\mu\text{m}$ . (Col 4, lines 63-64)

Regarding claims 97 and 98, Mase et al discloses the primer or second coating has a thickness of 0.05 $\mu\text{m}$  to 5 $\mu\text{m}$ . (Col 4, lines 11-14)

Regarding claim 102, Mase et al discloses the hard coat layer includes colloidal silica with an average particle size of 50 to 200 /, which is 5 to 20 nm in diameter. (Col 4, lines 21-31)

3. Claims 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of LaLiberte et al (U.S. 4,273,809).

Mase et al as modified above by Soane et al is silent as to further post-cure the organic liquid material to ensure complete curing of the coating material. However, post-curing the optical material is well known and conventional as shown for example by LaLiberte et al. LaLiberte et al discloses a method of casting resin lenses. The method includes a post-curing the lens material by removing the partially cured lens from the mold and heating in a post cure oven at approximately 200°F or 93.33°C for one to three hours to produce desirable final polymerization of the lenses. (Col 2, lines 17-44)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the partially cured lens from the mold and heating to post cure the lens material to form the final polymerized lens as disclosed by LaLiberte et al in the method of Mase et al as modified by Soane et al to allow ease separation of the lens material from the mold and to prevent breakage of the molds at separation. (Col 1, lines 9-19)

4. Claims 86, 87, 95, and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of Singh et al (U.S. 5,204,126).

Mase et al as modified above is silent as to the mould surface includes mold release agent in the form of a silane or fluorochemical treatment. However, providing mold with release agent by treating the surface with silane or fluorochemical is well known and conventional as shown for example by Singh et al. Singh et al discloses method of forming an ultra thin release films on the mold surfaces. The method includes forming a film with fluorinated alkyl group or silane or siloxane onto the surface of the mold surface, (Col 4, lines 48-59) and the film has a thickness of not more than 0.5  $\mu\text{m}$  or not more than 10 nm. (Col 7, lines 23-30)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide very thin silane or fluorochemical film as a release agent to the mold surface as disclosed by Singh et al in the method of Mase et al as modified by Soane et al to allow the casting of the optical lenses to be easily release from the surface of the mold without damaging the lens. (Col 1, lines 50-55)

5. Claims 99-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of Takamizawa et al (U.S. 5,096,626).

Mase et al as modified above is silent as to the anti-reflection layers includes stack of layers with a cumulative thickness ranged from 0.5  $\mu\text{m}$  to 20  $\mu\text{m}$  or 1.5  $\mu\text{m}$  to 5  $\mu\text{m}$  with alternate high and low refractive index layers. However, providing anti-reflection layers as a multi-layers with a cumulative thickness ranged from 0.5  $\mu\text{m}$  to 20  $\mu\text{m}$  or 1.5  $\mu\text{m}$  to 5  $\mu\text{m}$  with alternate high and low refractive index layers on the first and second coating layers is well known and conventional as shown for example by

Takamizawa et al. Takamizawa et al discloses forming anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness film and the thickness of the film can be adjusted by selection of a solvent or a coating method, which is considered to be any desired thickness and includes 0.5  $\mu\text{m}$  to 20  $\mu\text{m}$  or 1.5  $\mu\text{m}$  to 5  $\mu\text{m}$ . (Col 6, lines 23-37)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness film and the thickness of the film can be adjusted by selection of a solvent or a coating method, which is considered to be any desired thickness and includes 0.5  $\mu\text{m}$  to 20  $\mu\text{m}$  or 1.5  $\mu\text{m}$  to 5  $\mu\text{m}$  as disclosed by Takamizawa et al in the method of Mase et al as modified by Soane et al to provide hard coat film and anti-reflecting film with excellent adhesion between the lens and film with no defects. (Col 2, lines 5-13)

#### **Response to Arguments**

6. Applicant's arguments filed May 24, 2005 have been fully considered but they are not persuasive.
7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Soane et al recited motivation for using an in-mould coating process. Soane et al recited a method is needed because prior art lenses are shipped to a different facility to provide additional optical coatings and requiring extra expense and waiting time of up to a week and Soane et al provided a teaching of formation of completed optical elements on-site without requiring a different location and additional time to reduce costs and time. (See Soane et al, Col 1, lines 53-57 and Col 2, lines 33-44)

8. In response to applicant's argument that Soane et al does not teach a coupling agent capable of interact or react with another acrylate matrix. However, Mase et al provided that teaching of using a polyacrylate polyols with polyisocyanate to form the primer layer, which will react with another acrylate matrix. (See Mase et al, Col 3, lines 18-30) The combination of Mase et al and Soane et al recite the instant invention.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P. Chan whose telephone number is 571-272-1225. The examiner can normally be reached on Monday-Thursday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher A. Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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